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# EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.  
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

September 1, 1994

94-RF-09048

Gail Hill  
Environmental Protection Division  
DOE, RFFO

Attn: D. L. Mauer

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE (RFETS) RESOURCE  
CONSERVATION AND RECOVERY ACT (RCRA) PERMITTING STRATEGY -  
ALS-319-94

Enclosed is the RFETS RCRA Permitting Strategy, which has been prepared in response to  
a request from D. L. Mauer of your staff. The strategy has been prepared in close  
coordination with D. L. Mauer and G. Uetrecht of your staff.

If you have any questions or comments regarding this issue, please contact Kirk Ticknor at  
extension 6344 or Kyle Peter at extension 7752.



A. L. Schubert, Program Manager  
Waste Compliance Programs

KWT:aaf

Orig. and 1 cc - Gail Hill

Enclosure:  
RFETS RCRA Permitting Strategy

ADDRESS: CONTROL  
OUTGOING LTR. NO.  
DOE ORDER # 5400.1  
4 RF 09048

DIST.	LTR	ENC
BARAL, M.E.		
BANCH, D.B.		
BURLINGAME, A.I.		
USBY, W.S.		
ARNIVAL, G.J.		
HURCH, A.A.	X	X
AVIS, J.G.		
ERHERA, D.W.		
RAY, R.E.		
EIS, J.A.		
LOVER, W.S.		
OLAN, P.M.	X	X
ANNI, B.J.		
ARMAN, L.K.		
EALY, T.J.	X	X
EDAHL, T.G.	X	X
ILBIG, J.G.	X	X
UTCHINS, N.M.		
ACKSON, D.T.		
ELL, R.E.		
UESTER, A.W.		
MARTINEZ, A.Y.	X	X
IARX, G.E.		
EDONALD, M.M.		
ERENNA, F.G.	X	X
ONTROSE, J.K.		
ORGAN, R.V.		
ETER, K.G.	X	X
IZZUTO, V.M.	X	X
OTTER, G.L.	X	X
ISING, T.L.		
ANDLIN, N.B.		
CHUBERT, A.L.	X	X
CHWARTZ, J.K.		
ETLOCK, G.H.		
TEWART, D.L.		
TIGER, S.G.	X	X
OBIN, P.M.		
DOORHEIS, G.M.		
VILSON, J.M.		
ICKNOR, K.W.	X	X
nderson, S.A.	X	X
gilton, B.D.	X	X
arias, T.M.	X	X
Surel, Med	X	X
ADMIN. RECORD		
RAFFIC		
ATS/T130G	X	X
ORRES CTRL	X	X

CLASSIFICATION:		
UNCLASSIFIED	X	X
CONFIDENTIAL		
SECRET		

Hickley, G.L. X X  
AUTHORIZED CLASSIFIER  
SIGNATURE  
Exempt from Classification  
Per CLW-060-94 (RHP)  
DATE 8-30-94  
N REPLY TO RFP CC NO:  
None

ACTION ITEM STATUS  
☐ Partial/Open  
☒ Closed

LTR APPROVALS:  
Orig & Typist Initials  
KWT AAF

Best Available Copy

ADMIN RECCRD

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## ROCKY FLATS RCRA PERMITTING STRATEGY

### I. PURPOSE/INTRODUCTION:

This document summarizes the strategy that RCRA P&C (RCRA P&C) is using at Rocky Flats to improve the quality and assign appropriate priority to permitting and closure deliverables to DOE and CDPH&E. The basic framework and logic behind the strategy will remain in place for RCRA permitting activities; however, it is recognized as projects and regulations change, the strategy will change. Therefore, this strategy will be updated periodically.

### II. DESCRIPTION OF RCRA PERMITTING STRATEGY:

The Rocky Flats RCRA Permitting Strategy consists of the following five major elements: identification of permitting and closure plan deliverables, prioritization of those deliverables, activity flow chart for preparation of deliverables, regulatory options analysis, and regulatory requirements checklists. The last three elements of the strategy will be incorporated into RCRA P&C procedures to assist personnel in preparing quality deliverables. Each of these elements is discussed in detail in the following paragraphs.

#### a. Identification of permitting and closure plan deliverables:

The first step in development of the permitting strategy was to identify the anticipated permitting and closure plan deliverables. The list of deliverables was identified by reviewing strategic objectives from the Draft Rocky Flats Strategic Plan dated June 1994, major activity descriptions for fiscal year 1995, regulatory requirements, and major anticipated projects (including accelerated clean-up, waste disposal, liquid/residue stabilization, facility deactivation, downsizing the protected area, repackaging Special Nuclear Material, and handling excess materials). The specific permitting and closure plan deliverables and associated target completion dates are identified in Attachment 1 to this document.

#### b. Prioritization of identified and future deliverables:

Priority is assigned to RCRA permitting and closure plan deliverables in the following order: (1) safety and risk reduction, (2) compliance, (3) clean-up, (4) economic conversion, and (5) all other strategic objectives and activities. This prioritization was developed for the use of RCRA P&C since the Rocky Flats Strategic Plan does not specifically identify the priority of the strategic objectives. It is anticipated that funding and resources will be available to support any activity with a 1, 2, 3 or 4 priority rating.

Attachment 2 provides a detailed description and prioritization of each RCRA P&C deliverable shown in Attachment 1. It should be noted that most of the deliverables shown in attachment 2 are associated with Rocky Flats strategic objectives.

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c. Activity flow chart for preparing deliverables:

A flow chart will be used to ensure all necessary activities are considered in preparation of a RCRA permitting or closure plan deliverable. The flow chart will also serve to help project managers prepare and integrate into their schedules the RCRA permitting and closure plan processes. Attachment 3 to this document is the flow chart that will be used and incorporated into the procedures used for permitting and closure plan deliverables at Rocky Flats.

d. Regulatory options analysis:

Early on in the process of developing RCRA permitting and closure plan deliverables, a regulatory options analysis will be performed in order to determine the best regulatory option to allow the activity or project to proceed. Performing the options analysis prior to submittal of permitting and closure plan deliverables will help improve the quality and defensibility of the deliverables. The regulatory options analysis consists of the following thought process:

1. Is a deliverable really needed in order to perform the activity (e.g., is the waste characterization correct, can the activity be done without CDPH&E approval, can the activity be performed at an existing, permitted facility, etc.)?
2. Does the activity support a Rocky Flats strategic objective? (Note: This question will help assign priority to the deliverable and will help screen out unnecessary deliverables).
3. What options are available in order to perform the activity (e.g., change to interim status, permit modification, RD&D permit, letter approval, proceed without regulator approval, etc.)?
4. What are the advantages and disadvantages of each option?
5. Given the advantages and disadvantages, which is the best option to pursue?

Attachment 4 to this document is the regulatory options analysis checklist that will be used and incorporated into the procedures used for all permitting and closure plan deliverables at Rocky Flats. Attachment 5 is an example of the format in which the results of the regulatory analysis will be documented and forwarded to DOE for changes to interim status, permit modifications, RD&D permits, and closure plans.

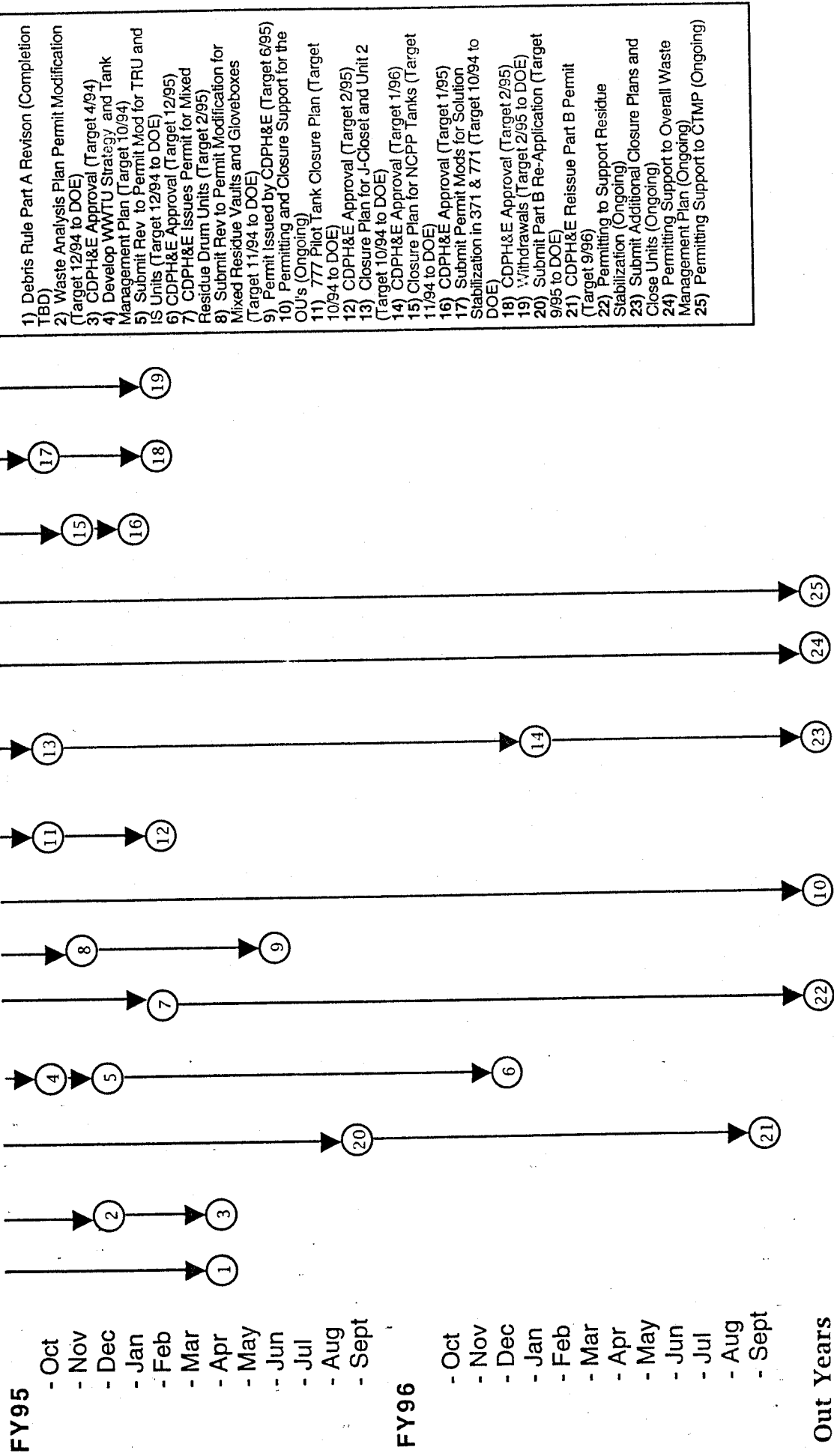
e. Regulatory requirements checklists:

Regulatory checklists will be used to ensure that permitting and closure plan deliverables contain all information required by the Colorado Hazardous Waste Regulations. This will help ensure the completeness of deliverables. Attachment 6 to this document shows an example of the regulatory checklist that will be incorporated into the procedures used for changes to interim status, permit modifications, RD&D permits, and closure plans.

### III. FUTURE ACTIONS:

RCRA P&C plans to develop an overall permitting and closure road map for Rocky Flats. The first step in developing the road map is to identify all RCRA-regulated units at Rocky Flats. This was completed on August 5, 1994 with the completion of the revised "Master List of RCRA Hazardous Waste Units at Rocky Flats." The next step is to provide a logical sequencing for permitting and/or closure of those units. A draft example of the road map is shown in Attachment 7 to this document. This road map will be completed in fiscal year 1995. The road map will serve to improve prioritization of deliverables and provide direction for RCRA permitting and closure activities at Rocky Flats.

# NEAR-TERM PERMITTING AND CLOSURE PLAN DELIVERABLES



**DESCRIPTION AND PRIORITIZATION OF PERMITTING AND  
CLOSURE PLAN DELIVERABLES**

*Note: the numbering of activities described below corresponds to the numbers of the activities shown on attachment 1*

1. Revise Part A to Incorporate the Debris Rule.  
Priority 2

RCRA P&C plans to research the debris rule and, if necessary, propose changes interim status to address the rule. An analysis of issues pertaining to potential generation of hazardous debris resulting from the idle equipment program will be completed as part of this effort. In addition, this effort will be coordinated with the strategy discussed in Paragraph 25 below with respect to LDR aspects of the debris rule.

2. Waste Analysis Plan Permit Modification  
Priority 2

Several changes need to be made to the Waste Analysis section of the Part B Permit. This includes changes to address LDR compliance, hazardous waste characterization, liquid/solid determination, and radiological screening. An analysis of issues resulting from the potential generation of hazardous debris from the idle equipment program will also be performed as part of this effort.

4. Waste Water Treatment Unit Strategy and Tank Management Plan  
Priority 2

The tanks that make up the process waste water transfer and treatment system at Rocky Flats could potentially qualify for the Waste Water Treatment Unit exclusion under RCRA. RCRA P&C will continue to pursue the exclusion. Since it appears as if it may be years before Rocky Flats will be able to take the exclusion, RCRA P&C will be developing a strategy of how best to manage these tanks in the interim. The results of the strategy will be documented in a hazardous waste tank management plan. RCRA P&C will be performing an options analysis to help decide the best, most cost effective management practice for the tanks. This analysis will consider the advantages and disadvantages of the following options: taking the exclusion without CDPH&E and EPA concurrence, closure, physical upgrades to achieve compliance with RCRA, deferral of upgrades, and any other options or combination of options as appropriate.

5. Permit Modification for Interim Status Units and TRU/NOID  
Priority 2

CDH has "called in" a revision to Permit Modification for Interim Status units as it applies to tank storage on the 750 Pad. As part of revising this permit modification, a regulatory analysis will be performed for each unit in the modification to determine the best way to handle the unit (i.e., continue to permit, defer action, close, withdraw, etc). Consideration

will also be given to combining this effort with the revision to the TRU/NOID Permit Modification discussed below.

The Permit Modification for TRU/NOID Units also requires updating and revision. As part of revising this permit modification, a regulatory analysis will be performed for each unit in the modification to determine the best way to handle the unit (i.e., continue to permit, defer action, close, withdraw, etc). The Waste Water Treatment Unit Strategy discussed in paragraph 4 above will help in determining which waste water tanks, if any, should be included in the permit modification.

7. Obtain a permit for units that will store backlog mixed residues in 55-gallon drums.  
Priority 2.

A U. S. District Court has ordered Rocky Flats to obtain a permit for backlog mixed residues. Containerized mixed residues are stored in 55-gallon drums and smaller containers. In order to quickly obtain a permit for the majority of the volume of backlog mixed residues, Rocky Flats has provided CDPH&E with all the information that CDPH&E needs to issue a permit for 55-gallon drum storage units. It is anticipated that CDPH&E will issue a draft permit for these units in October and the final permit early in 1995. At this point, RCRA P&C has no specific actions to provide information to CDPH&E but will quickly respond to any additional requests from CDPH&E to facilitate final permit issuance.

8. Obtain a permit for units that will store backlog mixed residues in vaults and gloveboxes.  
Priority 2.

Mixed residues stored in containers smaller than 55-gallon drums are stored in vaults and gloveboxes. A U. S. District Court has ordered Rocky Flats to submit information (e.g., revised drawings, revised closure information, etc.) that CDPH&E needs to draft a permit for storage of mixed residues in vaults and gloveboxes. RCRA P&C will be placing high priority in providing those deliverables to CDPH&E before the court-ordered deadlines.

10. Permitting and Closure Plan Support for OU's  
Priority 3

RCRA P&C will be providing on-going support to Environmental Restoration activities. Examples include changes to the Interagency Agreement that need to be reflected in the Part B Permit and permitting actions for storage or treatment of hazardous waste, if required. RCRA P&C will emphasize coordination between Environmental Restoration and Waste Compliance Programs personnel. RCRA P&C will emphasize options analyses, especially on clean-up agreement negotiations and clean-up activities, in order to reduce risk and expedite clean-up.

11. Building 777 Mixed Residue Pilot Tank Closure Plan  
Priority 3

As part of the overall strategy to close mixed residue tank systems, a closure pilot project is being done to gather information that will be used to help make engineering decisions pertaining to methods of closure for mixed residue tanks. It is anticipated that a closure plan will be drafted to describe the specific details for closing the four pilot mixed residue

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tanks in Building 777. Upon CDPH&E approval of the plan, closure activities will commence.

13. Closure plan for J-Closet (Unit 90.98) in Building 707 and Cargo Container (Unit 2)  
Priority 3

In order to help gain experience with room closure and obtain information to assist in revising the current Closure Performance Standard in the Part B Permit, the J-Closet in Building 707 is planned to be triple-rinsed and sampled in September 1994. This data will be used to help characterize the J-closet and prepare a detailed closure plan to close the unit. It is hoped that the data will help show that no further cleaning will be required to close the room.

Sampling is being performed in Unit 2 in order to characterize the unit so that a detailed closure plan can be submitted to CDH. This data will be used to help characterize the unit and prepare a detailed closure plan to for closure. It is hoped that the data will help show that no further cleaning will be required to close Unit 2.

15. Closure Plan for NCPP Tanks  
Priority 3 and 4

Several tanks in Buildings 444, 883 and 866 have been identified as being needed to receive waste water as part of the clean-up for economic conversion. RCRA P&C has provided assistance to Building Operations for planning and funding of this work. During preparation of the closure plan (if necessary), RCRA P&C will emphasize options analysis to reduce cost and expedite closure of these tanks. This effort will also be coordinated with the Waste Water Treatment Unit Strategy discussed in Paragraph 4 above.

17. Obtain a permit for certain solution stabilization activities in Buildings 371 and 771.  
Priority 1.

Plans are currently underway to stabilize corrosive, plutonium bearing solutions in Buildings 371 and 771. The solutions currently represent a potential safety hazard. Certain steps of the stabilization process must be specifically approved by CDPH&E (e.g., neutralization of any solutions and calcination of any precipitated solids that exhibit the characteristic of toxicity for RCRA heavy metals). RCRA P&C is therefore placing high priority on preparing the permit modification that will allow the stabilization process to be performed. In addition, characterization of the liquids to allow treatment without a permit will continue to be emphasized and pursued.

19. Withdrawals  
Priority 5

Withdrawals from the Part A Application and Part B Permit Modifications are needed to eliminate those units that were originally thought to require permits but were never used and currently have no identified use. An initial listing of units to be withdrawn is shown in the "Master List of RCRA Hazardous Waste Units at Rocky Flats". Records will be researched, personnel interviews conducted, and field investigations performed to finalize the listing of units to be withdrawn. Once finalized, a letter will be sent to CDPH&E to

notify them of the withdrawal. CDH approval will not be requested for withdrawal of those units.

20. Renew Rocky Flats RCRA Part B Permit  
Priority 2.

The Rocky Flats RCRA Part B Permit is due to expire in October of 1996. In FY95, RCRA P&C will be determining the scope of work required to get the permit re-issued and then will initiate this work. The following steps will be taken to determine the scope of permit re-issuance:

- a. Perform a regulatory analysis of Section 100 of the Colorado Hazardous Waste Regulations to determine the work required by Rocky Flats to initiate the process. In addition,
- b. Consider new regulations for incorporation into the revised permit.
- c. Consider modification of permit sections that are problematic or confusing (in particular, the Waste Analysis and Closure Sections).
- d. Once the extent of work is defined, identify the resources required to revise the permit.

22. Permitting Support for Residue Stabilization  
Priority 1 or 2 (depending on specific activity)

Several residues that require stabilization are RCRA-regulated. RCRA P&C will support the permitting of any activities that require CDPH&E approval. RCRA P&C will emphasize options analyses during this process to help expedite the stabilization of mixed residues.

23. Closure Plans for Additional Units  
Priority 3

RCRA P&C will continue to prepare closure plans for units in order to support closure. In support of this, RCRA P&C will be exploring options to reduce the cost and increase the efficiency of closure. The following options are being explored:

- a. Submittal of a revised, more achievable closure performance standard for clean closure of permitted units.
- b. Use of cleaning technologies that may not require sampling to verify clean closure.
- c. Simplification and streamlining of the closure process.

24. Permit Modifications to Support Comprehensive Waste Management Plan  
Priority 2

The Comprehensive Waste Management Plan charts the future of waste storage at Rocky Flats. RCRA P&C was involved in preparation of the plan and will be involved in future changes to the plan. Additionally, RCRA P&C will be providing permitting support for future storage needs as they arise. RCRA P&C will emphasize options analysis as future storage options are considered in order to help improve waste management at Rocky Flats.

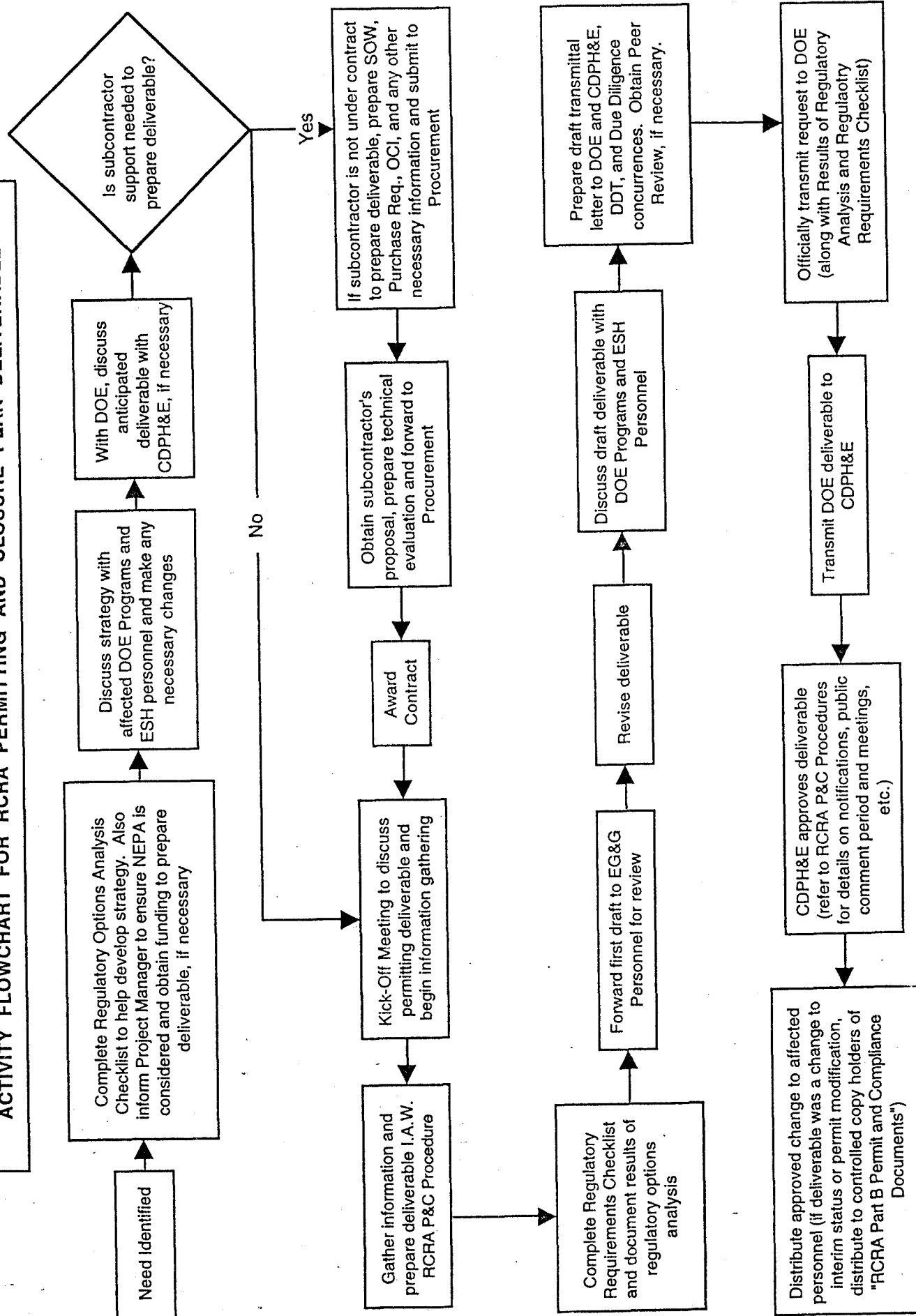
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25. Submit permitting documents to support the CTMP to help eliminate LDR waste Priority 1 or 2 (depending upon specific activity).

Numerous hazardous waste treatment and management activities will occur at Rocky Flats to support the treatment of LDR wastes currently stored at Rocky Flats. RCRA P&C involvement of this effort will include the following:

- a. Support to LDR Compliance Programs in developing an overall strategy to treat LDR waste at Rocky Flats. LDR Compliance Programs will emphasize the need to focus on technologies that have potential to quickly and significantly reduce the backlog of LDR waste. This includes evaluation of off-the-shelf technologies and technologies available at other facilities. Consideration will also be given to the LDR aspects of the debris rule as it may apply to existing and anticipated volumes of hazardous debris.
- b. When specific permitting needs are identified for activities that will help eliminate LDR waste, RCRA P&C will analyze the available options (permit modifications, RD&D permits, TSEs, etc.) to determine the best way to proceed with the activities.

# ACTIVITY FLOWCHART FOR RCRA PERMITTING AND CLOSURE PLAN DELIVERABLES



## REGULATORY OPTIONS ANALYSIS

### I. PRELIMINARY SCREEN FOR PERMITTING AND CLOSURE PLAN REQUESTS

- A. Does the activity involve hazardous waste? (Get assistance from the Waste Characterization and Identification Group, if necessary).
  - 1. Was a proper waste determination/characterization performed?
    - a. include supporting data
    - b. document process knowledge
  - 2. Has the waste in question been evaluated by the backlog program?
- B. Is the activity subject to regulation (e.g., does it meet the definition of treatment?)
- C. Can the activity be performed in an existing interim status or permitted location either at Rocky Flats or at another facility?
- D. Can the activity be performed under a TSE?
  - 1. Is it to demonstrate a new technology on a new waste stream?
  - 2. Are the amounts of waste to be treated less than 10,000 kg?
- E. Can the activity be performed under an RD&D permit?
  - 1. Is it to demonstrate a new technology on a new waste stream?
  - 2. Will it last no more than 1 year? (3 years with extensions from CDH)
- F. Can the activity be performed without a permit or closure plan (e.g., 90 day unit, elementary neutralization, inventory removal)?

### II. JUSTIFICATION OF REQUEST

- A. Does the request support a Rocky Flats strategic objective? (assign number)
- B. For storage requests:
  - 1. What Rocky Flats strategy does the request support?
  - 2. Is the request part of the Waste Management Plan?
  - 3. How does the request fit into the long term storage strategy?
- C. For treatment requests:
  - 1. What Rocky Flats strategy does the request support?
  - 2. Is there sufficient process information for treatment systems?
  - 3. Has the system been sufficiently proven to ensure that it will meet LDR treatment standards?

### III. AVAILABLE OPTIONS

- A. What options are available in order to proceed with the activity (no regulator approval required, letter approval, recycling exclusion, change to interim status, RD&D permit, TSE, permit modification, closure plan)? Consideration should be given to previous interpretations and agreements with the regulator. Also, the following guidance should be considered when deciding between a change to interim status versus a permit modification:
1. Change to existing interim status unit (change to interim status)
  2. Change to existing permitted unit (permit modification)
  3. New unit (permit modification)
  4. Environmental Restoration activity (may be change to interim status)
- B. What are the advantages and disadvantages to each option?
- C. Given the advantages and disadvantages, which is the best option to pursue?

## REGULATORY REQUIREMENTS CHECKLISTS

### CHECKLIST FOR CHANGES TO INTERIM STATUS

Ensure that the following elements have either been included in previous Part A applications or are addressed in this change request.

- I. When is a revision required (100.11(d))
  - A. Treatment or storage of waste not in Part A
  - B. Increases in capacity
  - C. Significant process changes
  - D. Changes in ownership
- II. Content of Part A Revision (100.40)
  - A. Name, address and location
  - B. Description of nature of business
  - C. Listing of all permits received or applied for
  - D. Description of processes used for treating, storing or disposing and design capacities
  - E. Specification of wastes to be treated or stored
  - F. Scale drawing of entire facility showing all TSDs
  - G. Photographs of new TSDs
  - H. Topographic map
  - I. Description of hazardous debris categories and contaminant categories
  - J. Signed certification

## CHECKLIST FOR PERMIT MODIFICATION REQUESTS

Verify that each of the listed elements has been included in either (1) a previous permit application/modification or (2) this application/modification.

- I. Content of Permit Mod - General information requirements (100.41(a))
  - A. Chemical and physical analyses of waste and debris to support TSD
  - B. Waste Analysis Plan
  - C. Security Procedures and equipment
  - D. Inspection Schedules
  - E. Contingency Plan
  - F. Description of Procedures used for:
    - 1. Preventing hazards in unloading operations
    - 2. Preventing runoff
    - 3. Preventing contamination of water supplies
    - 4. Mitigate effects of equipment failure
    - 5. PPE requirements
    - 6. Prevent releases to atmosphere
  - G. Measures to prevent accidental ignition or reaction
  - H. Traffic information
  - I. Facility location information (seismic)
  - J. Floodplain information
  - K. Training information
  - L. Closure Plan
  - M. Topo map
- II. Content of Permit Mod - Specific information (100.41(b))
  - A. Container storage information
    - 1. Containment system information (plan drawing with dimensions, construction materials)
    - 2. How containers are kept from contact with standing liquids
    - 3. Capacity
    - 4. Run-on prevention
    - 5. Disposition of accumulated liquids
    - 6. Method of verifying that no free liquids are present
    - 7. Information showing compliance with storage of ignitable and reactive waste
    - 8. Description of procedures to ensure separation of incompatible waste
  - B. Tank storage or treatment
    - 1. Written PE assessment
    - 2. Dimensions and capacity of each tank
    - 3. Plan drawing for each tank or group of tanks
    - 4. Description of feed systems, safety cutoff, bypass systems, pressure controls
    - 5. Process flow diagram
    - 6. Corrosion protection information
    - 7. For new tank systems:
      - a. Installation description
      - b. Secondary Containment design information
    - 8. Spill and overflow protection description
    - 9. Controls for tanks storing ignitable, reactive or incompatible waste
    - 10. Effectiveness of treatment based on laboratory or field data
  - C. Miscellaneous treatment
    - 1. Physical characteristics, materials of construction and dimensions
    - 2. Engineering information regarding design and construction
    - 3. Hydrologic, geologic and meteorologic assessments and land use maps
    - 4. Potential pathways of exposure of humans and environmental receptors
    - 5. Effectiveness of treatment based on laboratory or field data



Once the permit application/modification has been prepared and submitted to DOE, RFFO, ensure that the following items are addressed to satisfy public comment requirements.

III. Public Comment Period (100.63)

A. Determine if Class 1, 2, or 3 according to Part 100, Appendix 1

B. Class 1

1. Notify CDH within 7 days after change is put into effect
2. Send notice to mailing list within 90 days after put into effect or within 90 days of when CDH approves

C. Class 2 or 3

1. Place ad and send notice to mailing list 7 days before or after submittal to CDH
  - a. announce 60 day comment period
  - b. place mod in public location(s)
2. Public meeting no sooner than 15 days after beginning or 15 days before end of comment period

## CHECKLIST FOR RD&D PERMIT APPLICATIONS

- A. Waste Description
  - 1. Type/quantity
  - 2. Physical/chemical description
- B. Process Engineering
  - 1. General Description
    - flow diagram
    - schematic
  - 2. Waste feed system
  - 3. Pollution control system
  - 4. Operating parameters
- C. Research Plan
  - 1. Objective statement/experimental design
  - 2. Operating parameters to be monitored and frequency
  - 3. Environmental parameters to be monitored and frequency
  - 4. Sampling and analytical methods
  - 5. Equipment inspection procedures and frequency
- D. QA/QC Plan <sup>1</sup>
  - 1. Calibration procedure and frequency
  - 2. Internal quality control checks
- E. Data reporting/record keeping
- F. Safety Plan
  - 1. Emergency response procedures
  - 2. Personnel qualifications or training
- G. Closure Plan
  - 1. Procedures to close
  - 2. Date/schedule
  - 3. Disposition of residues
  - 4. Quantity of waste
  - 5. Procedures to decontaminate equipment
  - 6. Time to close
- H. Financial Responsibility
  - 1. Financial assurance for closure
  - 2. Liability coverage
- I. Signatories
  - 1. Owner/address
  - 2. Operator/address

<sup>1</sup> The need for and type of QA/QC , including level of detail, will depend on the applicant's research objectives.

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## CHECKLIST FOR CLOSURE PLANS

- A. Content of Plan (264.112 and 265.112)
  - 1. Closure Performance Standard - to protect HH&E and minimize the need for further maintenance
  - 2. A description of how each unit will be closed in accordance with the closure performance standard.
  - 3. Maximum inventory of unit during life of the facility and detailed description of the methods to be used to remove, transport, treat, store or dispose of all hazardous wastes and identification of the off-site hazardous waste units to be used.
  - 4. Steps needed to remove or decontaminate all hazardous waste residues and contaminated system components, equipment, structures, and soils.
  - 5. Detailed description of other activities necessary to satisfy closure performance standards, including but not limited to groundwater monitoring, leachate collection, etc.
  - 6. A schedule for closure of each unit and justification for schedule if closure activities will require longer than 180 days to complete.
- B. Notifications/Certifications
  - 1. Notification of closure in accordance with Section 112(d)
  - 2. Independent registered professional engineer certification of closure in accordance with Section 115.

<sup>1</sup> The need for and type of QA/QC , including level of detail, will depend on the applicant's research objectives.

DETAILED CHRONOLOGICAL ROAD MAP

